

UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

TRANSMITTAL OF MEETING HANDOUT MATERIALS FOR
IMMEDIATE PLACEMENT IN THE PUBLIC DOMAIN

This form is to be filled out (typed or hand-printed) by the person who announced the meeting (i.e., the person who issued the meeting notice). The completed form, and the attached copy of meeting handout materials, will be sent to the Document Control Desk on the same day of the meeting; under no circumstances will this be done later than the working day after the meeting.

Do not include proprietary materials.

DATE OF MEETING

04/24/2001

The attached document(s), which was/were handed out in this meeting, is/are to be placed in the public domain as soon as possible. The minutes of the meeting will be issued in the near future. Following are administrative details regarding this meeting:

Docket Number(s)

PROJECT NO. 669

Plant/Facility Name

EPRI

TAC Number(s) (if available)

MB1344

Reference Meeting Notice

4/6/01

Purpose of Meeting
(copy from meeting notice)

TO DISCUSS EXTENSION OF RISK-INFORMED

INSERVICE INSPECTION METHODOLOGY

NAME OF PERSON WHO ISSUED MEETING NOTICE

LEONARD N. OLSHAN

TITLE

PROJECT MANAGER

OFFICE

NRR

DIVISION

DLPM

BRANCH

PD II-1

Distribution of this form and attachments:Docket File/Central File
PUBLIC

DF03



Risk & Performance- Inspired (RPi) Applications

April 24, 2001

4_01_NRC_Mtg.ppt

EPRI



Agenda

- **Purpose of Meeting**
- **RI-ISI Submittals**
- **BER**
- **Additional RPi Activities**
- **Action Items**
- **Concluding Remarks**

EPRI



Purpose of Meeting

- **Follow-up to August, 2000 meeting**
- **Continue NRC/Industry dialogue for Ongoing Risk and Performance Inspired Applications**
- **Discuss Status of RI-ISI Applications**
- **Discuss Schedule**

EPRI



RI-ISI Submittals

- **Follow-on Plants**
 - **Approved Applications**
 - **In Process Applications**
 - **Lessons Learned**
 - **Needed Improvements to Future Applications**

EPRI



Break Exclusion Requirements

- Historical Perspective
- Goals
- Impact on Existing Design Bases
- Adaptation of RI-ISI
- Results of Application to BER

EPRI



Break Exclusion Requirements

- Historical Perspective
 - Giambusso Letter, December 1972
 - O'Leary Letter, 1973
 - Regulatory Guide 1.46 "Protection Against Pipe Whip Inside Containment," May 1973
 - Standard Review Plan 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment," July 1981
 - Standard Review Plan 3.6.2, "Determination of Rupture Locations and Dynamic Effects Associated with the Postulated Rupture of Piping," July 1981
 - Many Specific Licensee/USNRC Agreements
 - ASME Boiler and Pressure Vessel Code, Section XI
 - USNRC Generic Letter 89-08 (FAC)

EPRI



Break Exclusion Requirements

- **Historical Perspective (cont.)**

- Individual Plant Requirements vary greatly:
 - Group A plants have no requirements for augmented examinations
 - Group B plants have a small number of augmented examinations
 - Group C plants meet SRP requirements,
 - Group D plants exceed SRP requirements
- Terminology includes BER, NBZ, HELB, AE...
- Requirements predate augmented inspection programs for FAC and Thermal Fatigue

- **Goals**

- A logical, consistent, stable and predictable process,
- Cost-effective implementation (RI-ISI process)

EPRI



Break Exclusion Requirements

- **Impact on Existing Design Bases**

- Current Process
 - Very plant specific
 - Special rules for "BER piping"
- Proposal
 - Change is to inspection size, only

EPRI



Break Exclusion Requirements

- **Adaptation of RI-ISI (SCOPE)**
 - **BWRs:**
 - can be Class 1, 2, 3, NNS piping,
 - MS, FW, RWCU, HPCI
 - **PWRs:**
 - can be Class 2, 3 and NNS piping,
 - MS, FW, AFW, SGBD, CVCS, AS

EPRI



Break Exclusion Requirements

- **Adaptation of RI-ISI (FAILURE POTENTIAL)**
 - **Operating Experience for applicable systems**
 - the only significant failures are due to FAC and high temperature creep and creep/fatigue,
 - others failures or anomalies due to thermal fatigue and cavitation
 - **Impact of Inspections**
 - Creep and creep/fatigue n/a for NPPs
 - FAC programs are in place,
 - RI-ISI assesses susceptibility to thermal fatigue and cavitation

EPRI



Break Exclusion Requirements

- **Adaptation of RI-ISI (FAILURE POTENTIAL)**
 - Plant Specific Service History
 - ≥ 10 years of BER inspection history
 - susceptibility to waterhammer
 - other augmented inspections (e.g. FAC)
 - leak detection capability

EPRI



Break Exclusion Requirements

- **Adaptation of RI-ISI (CONSEQUENCE of FAILURE)**
 - Consequence of Failure (General)
 - no credit for equipment in the vicinity (e.g. inside containment vs outside containment),
 - if credited: successful and unsuccessful operation assessed,
 - some plants designed for breaks even in the "no break zone"

EPRI



Break Exclusion Requirements

- **Adaptation of RI-ISI**
 - **RISK SIGNIFICANCE** - no change
 - **INSPECTION SIZE**
 - no change in "process" from TR-112657,
 - results will be plant specific
 - **Change in Risk**
 - meet R.G. 1.174 req'ts
 - provide for defense in depth

EPRI



Break Exclusion Requirements

- **Adaptation of RI-ISI**
 - **Licensee Approval Process**
 - BER programs typically defined in UFSARs
 - NEI 99-04 and 2000-17 provide guidance on Managing Regulatory Commitments
 - Notification via periodic 50.59 summary report
 - Other licensee commitments

EPRI



Break Exclusion Requirements

- **Results of Applications**

- Provided via Letter dated February 28, 2001
- Three Units at Two Sites
- Two PWRs
- One BWR

EPRI



Break Exclusion Requirements

- **Results of Applications (cont.)**

- Each plant meets SRP (or predecessor) BER requirements
- As expected, results varying between sites
- Differences include additional hardware and/or analysis

EPRI



Break Exclusion Requirements

- **Results of Applications**

- **BWR application (one unit):**
 - SRP vintage plant,
 - resulted in an inspection size of 12 percent
- **PWR application (two units):**
 - Pre SRP plants,
 - resulted in an inspection size of 1 to 2 percent of inspectable welds
 - 25 to 32 percent of welds protected via hardware/analysis

EPRI



Additional RPi Activities

- **TASCS Additional Screen**
- **PSI Requirements**
- **Living RI-ISI Program Requirements**
- **Alternative Surface Exam req'ts**
- **Integration Tasks**
- **Snubber Testing**
- **Classification**

EPRI



Additional RPi Activities - cont.

- **TASCS Addition Screen**
 - Incorporated NRC comments
 - Re-submitted March, 2001
- **PSI Requirements**
 - Attachment 3 to 2-28-01 Submittal
 - PSI method can be either RI-ISI or traditional SXI method
 - PSI inspection percentages as a function of risk category not ASME code class
 - Pursuing a code interpretation with ASME SXI

EPRI



Additional RPi Activities - cont.

- **Living RI-ISI Program Requirements**
 - 30 RI-ISI applications completed or underway
 - Developing site specific and generic living program criteria
 - Participating in VC Summer/Oconee Industry Programs
 - Will include guidance on the need for NRC submittal
 - Schedule:
 - Draft - Summer, 2001
 - Final - December, 2001

EPRI



Additional RPi Activities - cont.

- **Alternative surface exam req'ts**
 - Code case balloted at WGIRBE and WGISC
 - Approval by WGISC expected at May, 2001 meeting
 - To be presented to Subgroup Water Cooled System - May, 2001
 - Further supported by Task Group ISI Optimization Socket Welded Connection Whitepaper

EPRI



Additional RPi Activities - cont.

- **Integration Tasks**
 - EPRI-MRP thermal fatigue ITG
 - interim guidance
 - evaluation tools consistent with EPRI RI-ISI methodology
 - examination volumes
 - PDI

EPRI



Additional RPi Activities - cont.

- **Snubber Testing**

- Existing draft code case
 - developed based upon RI-IST results,
 - lessons learned from operating environment,
 - significant testing history
- Goal:
 - update to reflect/coordinate impact of RIISI

EPRI



Additional RPi Activities - cont.

- **RI-Classification**

- Draft SXI code case
 - Uses EPRI RI-ISI consequence methodology
 - Subgroup WCS - May, 2001
 - ASME Whitepaper under development,
 - Case studies being developed
 - At least two important needs:
 - Tie between passive and active function,
 - understanding of "implementation" issues and impact

EPRI



Action Items (12/99)

- **Industry/NEI/NRC Senior Level Mgt**
 - RI-ISI submittals
 - Integration/Coordination
- **Containment Inspections (NRC participation)**
- **LR - coordination with 3 year plan**
- **BER/HELB White Paper**
- **Living Program Criteria**
- **Use C&S whenever appropriate**

EPRI



Action Items (8/00)

- **NEI to investigate regulatory basis for BER review and acceptance by NRC (GDC 4 exemption, revision to SRP, etc.)**
- **RI-ISI Submittals (NEI)**
 - Supply to NRC submittal dates by month and a need date per unit,
 - Send in proposal for a two year moratorium on piping inspections
 - include West in above

EPRI



Action Items (8/00)

- **Submittals (General)**
 - should identify if relief from ASME percentages is required,
 - identify percent of inspections covered by old SXI program and percent of inspections covered by RI-ISI program
- **Living Program**
 - present progress at next mtg
 - include consideration of program re-submittal requirements

EPI21



Action Items (4/01)

EPI21



Concluding Remarks

- Industry
- NRC

EPRI